Fig 1

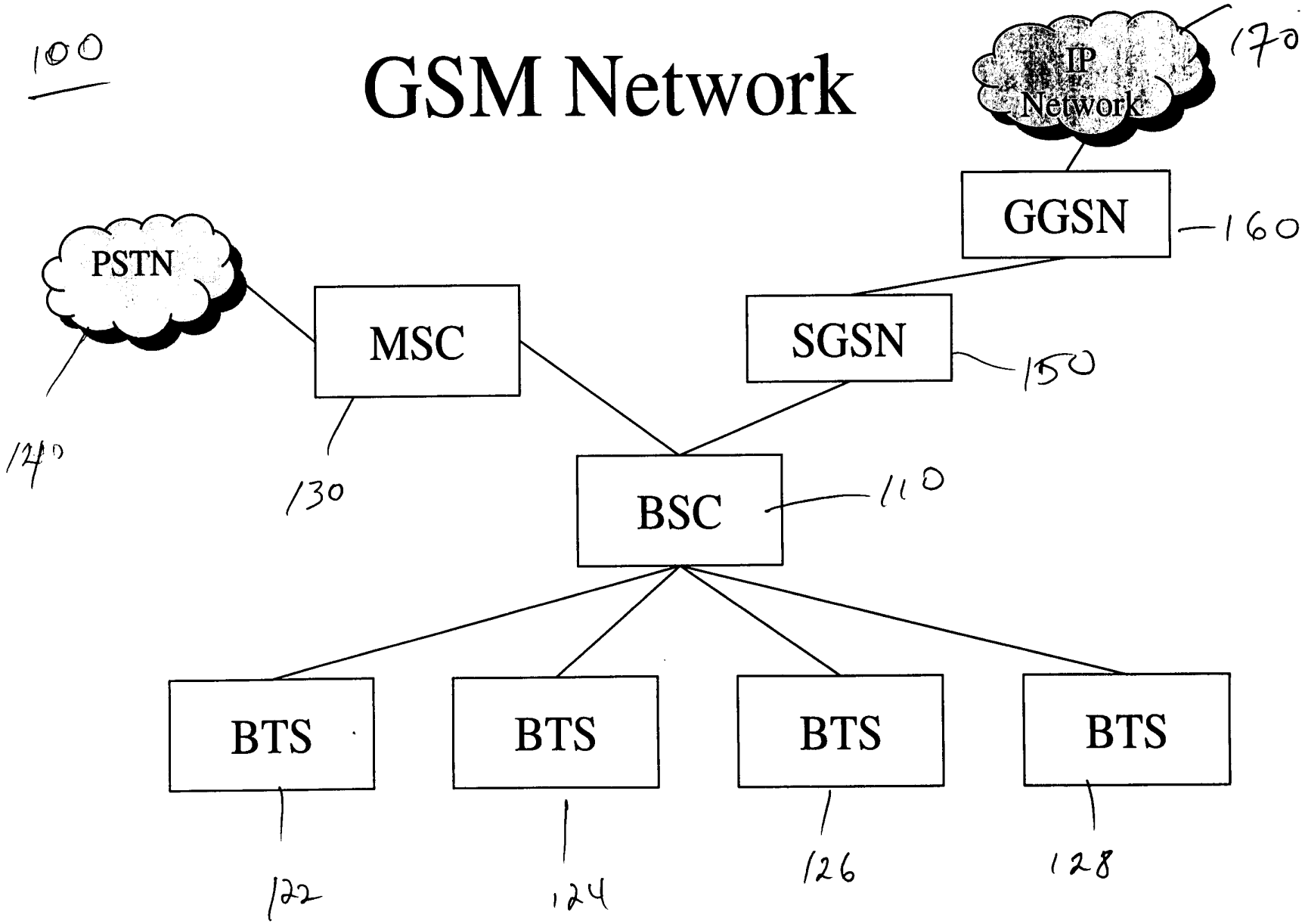
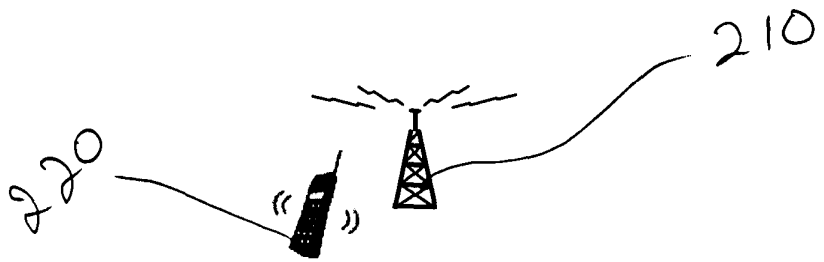

100
GSM Network
IP Network
170
GGSN
160
PSTN
MSC
SGSN
150
140
130
BSC
110
BTS
BTS
BTS
BTS
122
124
126
128

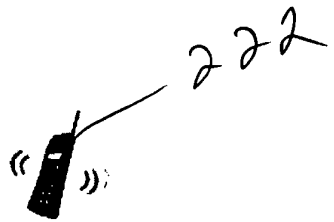
FIG 2

Timing Advance

- Used to insure TDM frame is received at the BTS at the correct time



A MS next to the cell site has zero timing advance



A MS at the edge of the cell has the highest advance for that cell

–MS starts transmission earlier to overcome the propagation delay

FIG 3

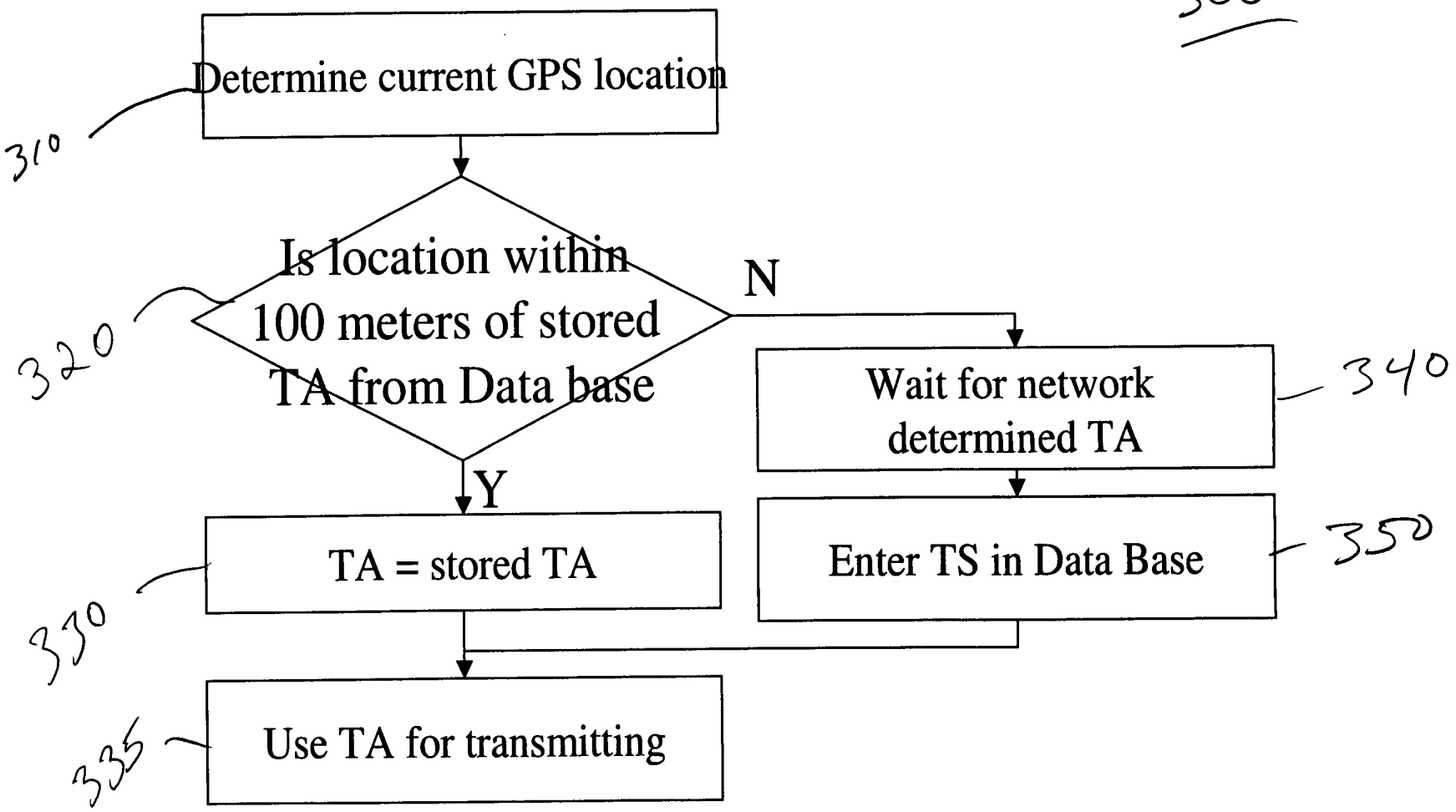

300
Determine current GPS location
310
Is location within 100 meters of stored TA from Data base
320
N
Y
Wait for network determined TA
340
Enter TS in Data Base
350
TA = stored TA
330
Use TA for transmitting
335

FIG 4

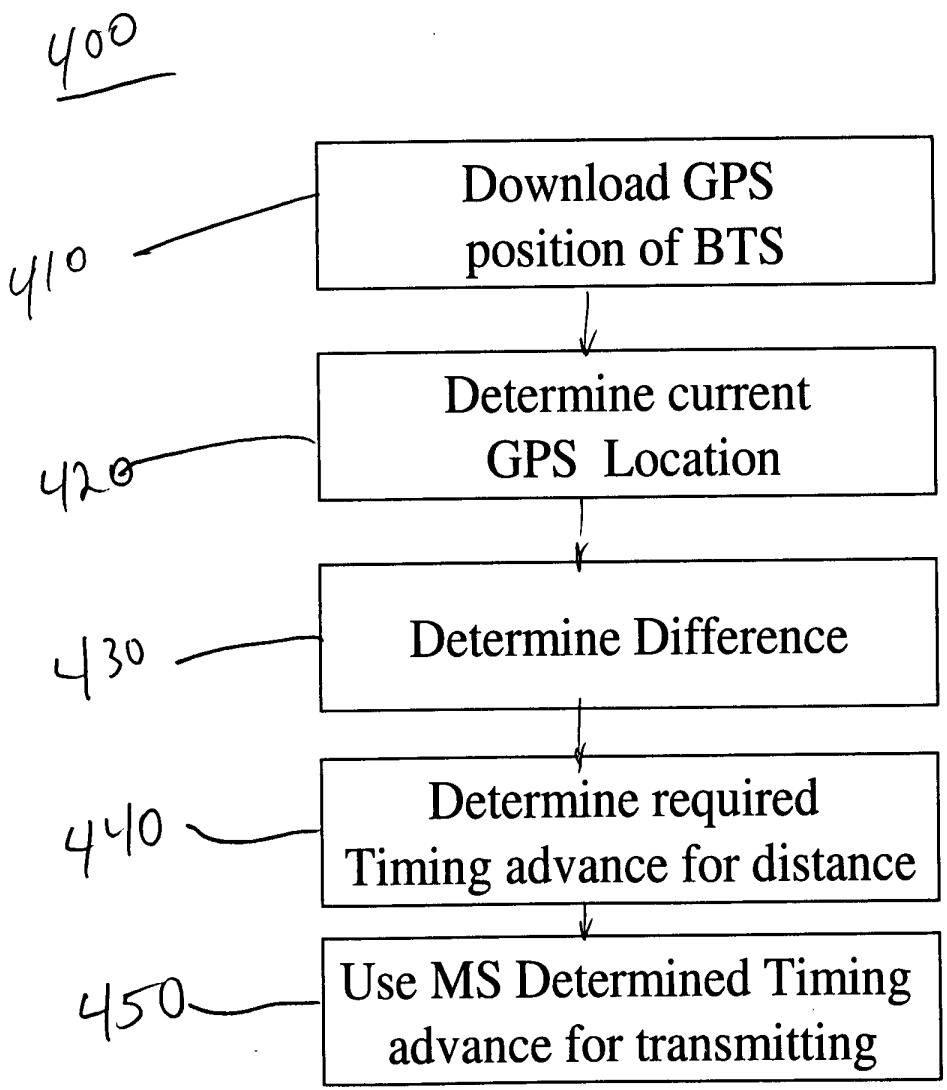

400
Download GPS position of BTS
410
Determine current GPS Location
420
Determine Difference
430
Determine required Timing advance for distance
440
Use MS Determined Timing advance for transmitting
450

FIG 5

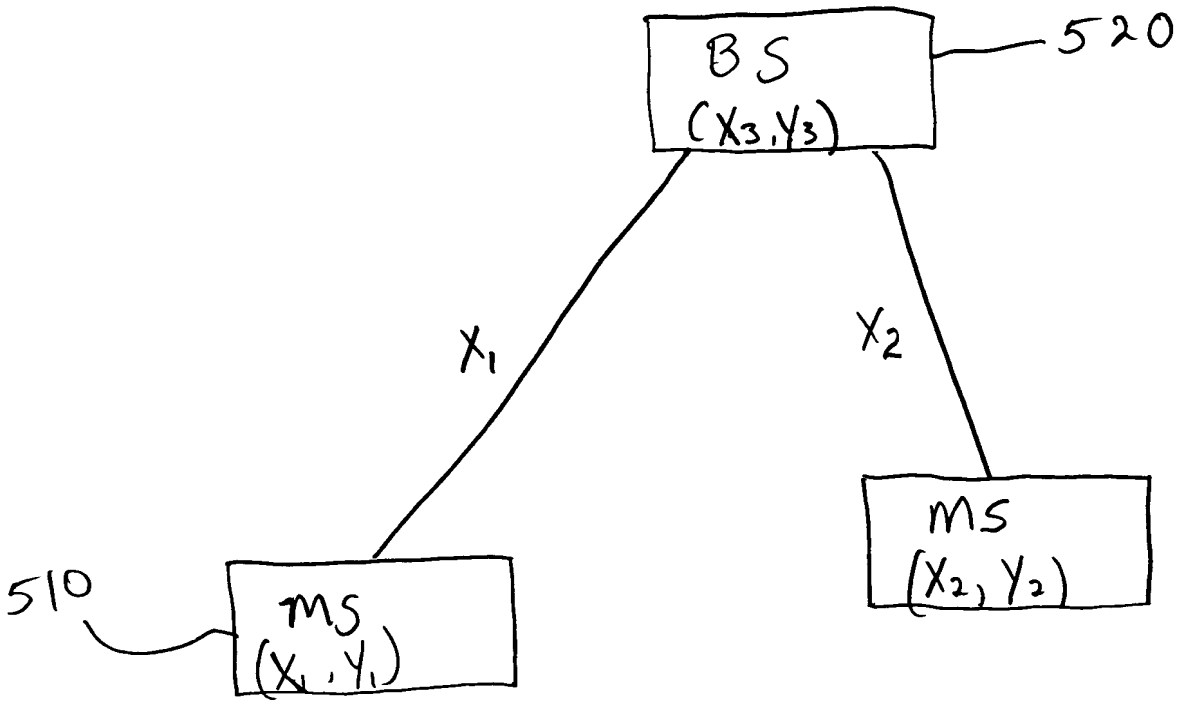


FIG 6

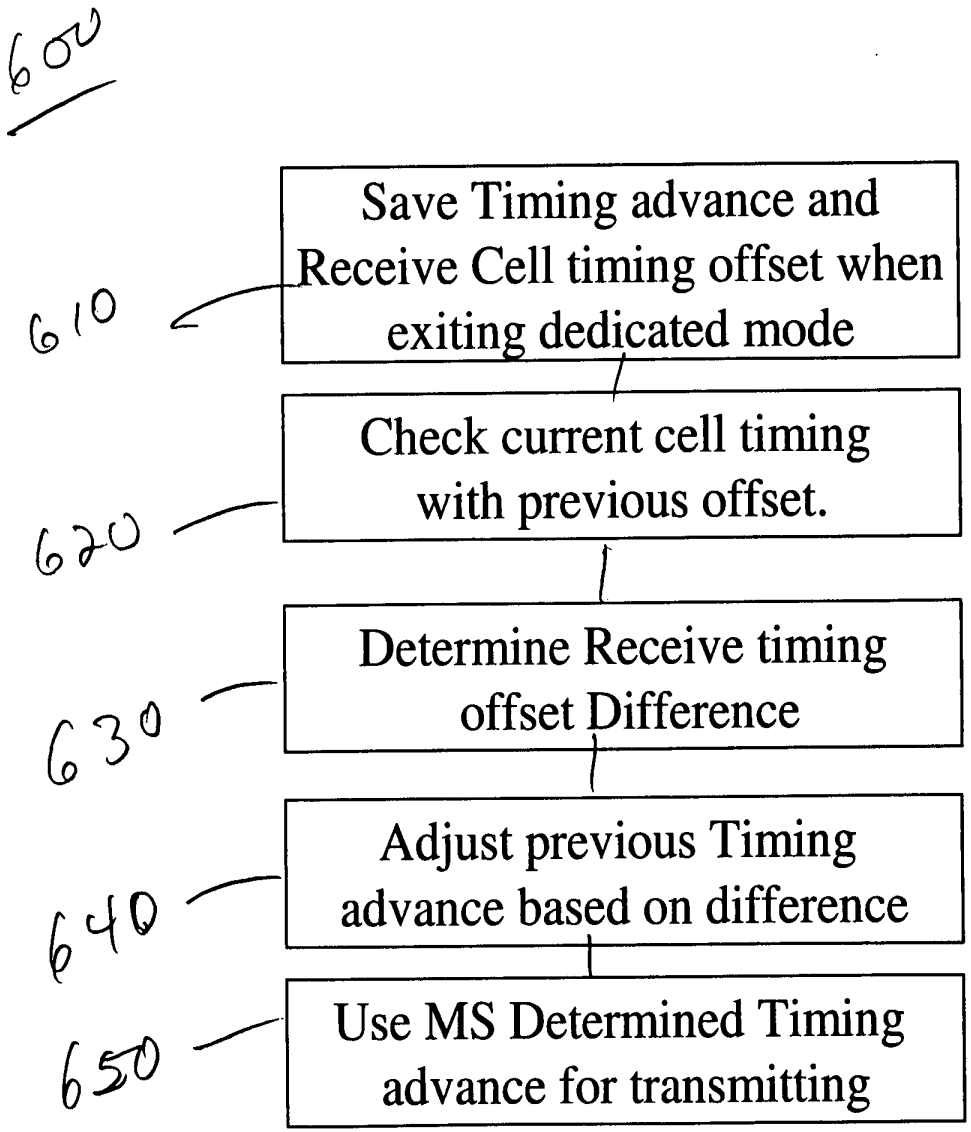
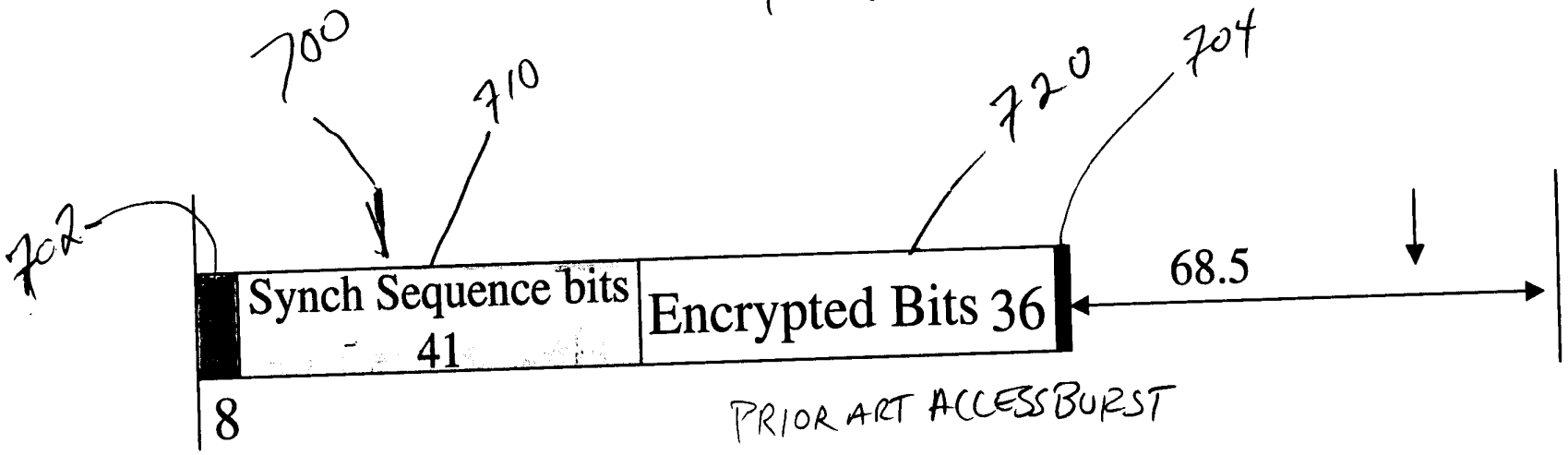
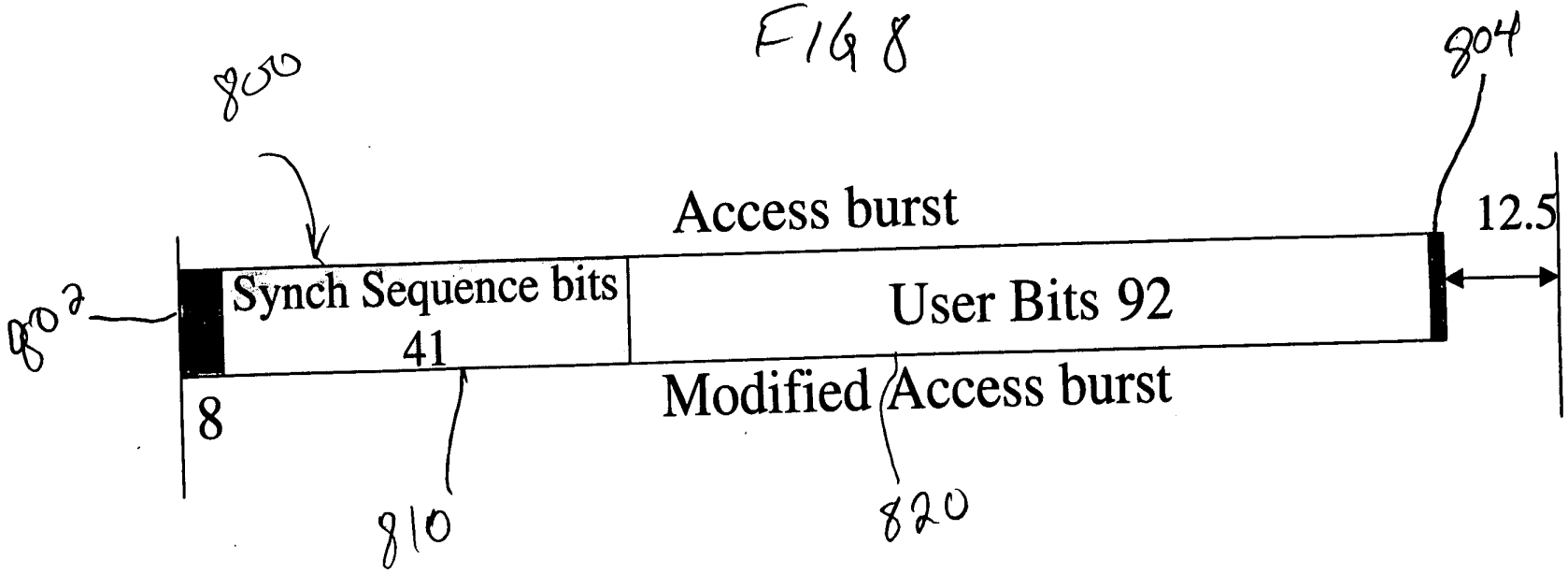

600
610
Save Timing advance and Receive Cell timing offset when exiting dedicated mode
620
Check current cell timing with previous offset.
630
Determine Receive timing offset Difference
640
Adjust previous Timing advance based on difference
650
Use MS Determined Timing advance for transmitting

FIG 7



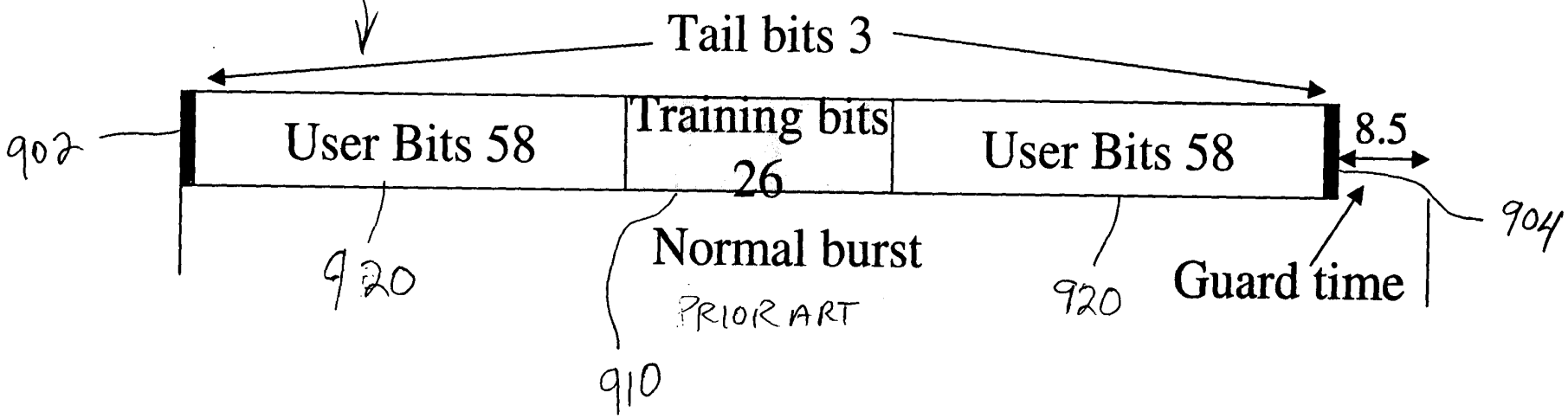
PRIOR ART ACCESS BURST

FIG 8



900

FIG 9



940

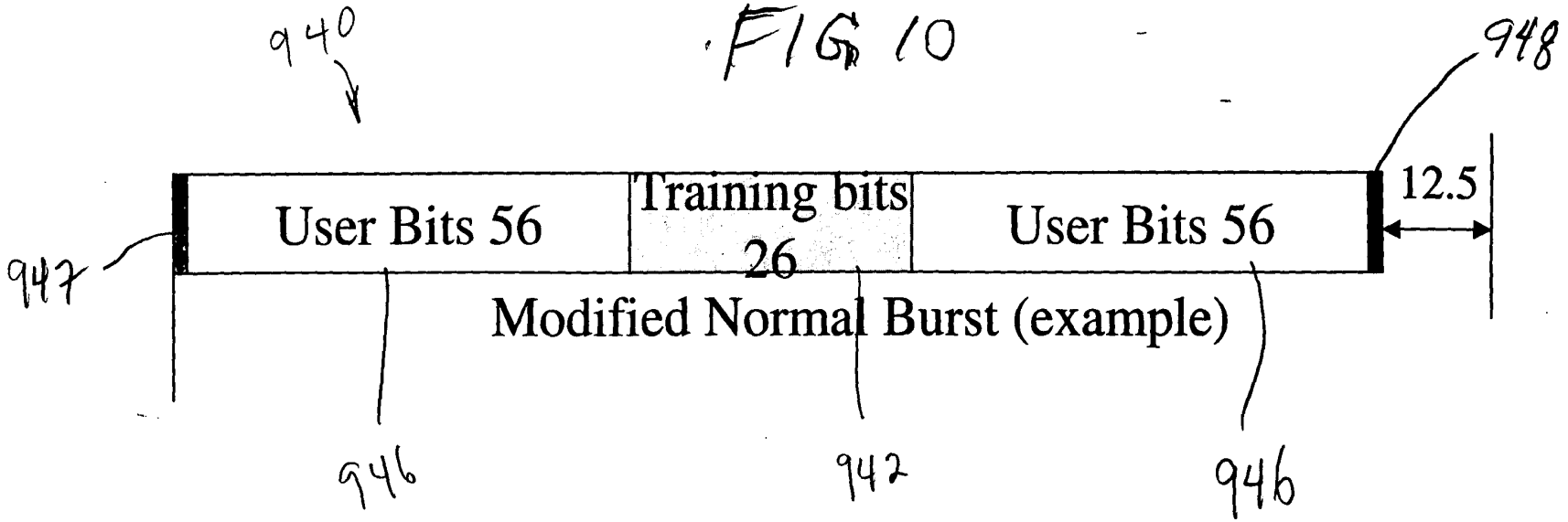



FIG 10